

WHAT IS CLAIMED IS:

1. An information recording medium, comprising:

a data area for recording data; and

a drive information area for recording at least one piece of drive information,

wherein:

the data area is divided into a plurality of segmented areas in a radial direction of the information recording medium, and

each at least one piece of drive information includes a recording and reproduction condition corresponding to at least one of the plurality of segmented areas.

2. An information recording medium according to claim 1, wherein the recording and reproduction condition defines an operation condition when an information recording and reproduction apparatus which can have the information recording medium mounted thereon performs data recording and reproduction.

3. An information recording medium according to claim 1, wherein each of the plurality of segmented areas includes an adjustment area usable for acquiring the recording and reproduction condition.

4. An information recording medium according to claim 1, wherein:

the data area includes at least one user area and at least one spare area including at least one substitute area usable in place of a defective area in the user area

when the user area includes the defective area, and

an unused substitute area among the at least one substitute area is usable for acquiring the recording and reproduction condition.

5. An information recording medium according to claim 1, wherein the data area includes an adjustment-only area only used for acquiring the recording and reproduction condition.

6. An information recording medium according to claim 1, wherein the plurality of segmented areas each correspond to at least one zone in accordance with one of a ZCLV format and a ZCAV format.

7. An information recording medium according to claim 1, wherein the drive information area includes N ECC blocks for calculating an error correction code, the N ECC blocks each include a plurality of sectors, and the recording and reproduction condition is recorded in one corresponding sector of the plurality of sectors, where N is an integer of 1 or greater.

8. An information recording medium according to claim 1, wherein each at least one piece of drive information further includes version information which indicates a condition at which the recording and reproduction condition is acquired.

9. An information recording medium according to claim 1, wherein at least one of the plurality of segmented areas includes at least one recording and reproduction instruction area.

10. An information recording medium, comprising:
 a data area for recording data; and
 a drive information area for recording at least one piece of drive information,
 wherein:
 a temperature range indicating a range of ambient temperatures of the information recording medium includes a plurality of segmented temperature ranges, and
 each at least one piece of drive information includes a recording and reproduction condition corresponding to at least one of the plurality of segmented temperature ranges.
11. An information recording medium according to claim 10, wherein the recording and reproduction condition defines an operation condition when an information recording and reproduction apparatus which can have the information recording medium mounted thereon performs data recording and reproduction.
12. An information recording medium according to claim 10, wherein the drive information area includes N ECC blocks for calculating an error correction code, the N ECC blocks each include a plurality of sectors, and the recording and reproduction condition is recorded in one corresponding sector of the plurality of sectors, where N is an integer of 1 or greater.
13. An information recording medium according to claim 10, wherein each at least one piece of drive information further includes version information which indicates a condition at which the recording and reproduction condition is

acquired.

14. An information recording and reproduction method for an information recording medium including a data area divided into a plurality of segmented areas in a radial direction of the information recording medium, the method comprising the steps of:

(a) indicating a segmented area which is a target of recording and reproduction among the plurality of segmented areas;

(b) obtaining a recording and reproduction condition corresponding to the indicated segmented area; and

(c) performing recording and reproduction based on the obtained recording and reproduction condition.

15. An information recording and reproduction method according to claim 14, wherein the recording and reproduction condition defines an operation condition when an information recording and reproduction apparatus which can have the information recording medium mounted thereon performs data recording and reproduction.

16. An information recording and reproduction method according to claim 14, wherein the step (b) includes the step of acquiring the recording and reproduction condition by adjustment processing.

17. An information recording and reproduction method according to claim 16, further comprising the step of:

(d) recording the recording and reproduction condition on the information recording medium.

18. An information recording and reproduction method according to claim 14, wherein:

the information recording medium further includes a drive information area having drive information including the recording and reproduction condition recorded therein, and

the step (b) includes the step of reading the recording and reproduction condition recorded in the drive information area.

19. An information recording and reproduction method according to claim 18, wherein:

the drive information includes version information which indicates a condition at which the recording and reproduction condition is acquired, and

the method further includes the step of:

(e) determining whether the recording and reproduction condition is re-usable or needs to be updated, based on the version information.

20. An information recording and reproduction method according to claim 19, wherein the version information includes history information concerning firmware for an information recording and reproduction apparatus.

21. An information recording and reproduction method according to claim 16, wherein the step (b) includes the step of using an adjustment area included in each of the plurality of segmented areas for the adjustment processing.

22. An information recording and reproduction method according to claim 16, wherein:

the data area includes at least one user area and

at least one spare area including at least one substitute area usable in place of a defective area in the user area when the user area includes the defective area, and

the step (b) includes the step of using an unused substitute area among the at least one substitute area in the spare area for the adjustment processing.

23. An information recording and reproduction method according to claim 16, wherein the step (b) includes the step of using an adjustment-only area included in the data area, which is only used for the adjustment processing.

24. An information recording and reproduction method according to claim 14, wherein the plurality of segmented areas each correspond to at least one zone in accordance with one of a ZCLV format and a ZCAV format.

25. An information recording and reproduction method according to claim 14, wherein at least one of the plurality of segmented areas includes at least one recording and reproduction instruction area.

26. An information recording and reproduction method for an information recording medium, wherein a temperature range indicating a range of apparatus temperatures of an information recording and reproduction apparatus includes a plurality of segmented temperature ranges, the method comprising the steps of:

(a) measuring an apparatus temperature of the information recording and reproduction apparatus;

(b) obtaining a recording and reproduction condition corresponding to a segmented temperature range which includes the measured apparatus temperature; and

(c) performing recording and reproduction based on the obtained recording and reproduction condition.

27. An information recording and reproduction method according to claim 26, wherein the recording and reproduction condition defines an operation condition when an information recording and reproduction apparatus which can have the information recording medium mounted thereon performs data recording and reproduction.

28. An information recording and reproduction method according to claim 26, wherein the step (b) includes the step of acquiring the recording and reproduction condition by adjustment processing.

29. An information recording and reproduction method according to claim 28, further comprising the step of:

(d) recording the recording and reproduction condition on the information recording medium.

30. An information recording and reproduction method according to claim 26, wherein:

the information recording medium includes a drive information area having drive information including the recording and reproduction condition recorded therein, and,

the step (b) includes the step of reading the recording and reproduction condition recorded in the drive information area.

31. An information recording and reproduction method according to claim 30, wherein:

the drive information includes version information which indicates a condition at which the recording and

reproduction condition is acquired, and

the method further includes the step of:

(e) determining whether the recording and reproduction condition is re-usable or needs to be updated, based on the version information.

32. An information recording and reproduction method according to claim 31, wherein the version information includes history information concerning firmware for an information recording and reproduction apparatus.

33. An information recording and reproduction method for an information recording medium including a drive information area for recording drive information including a plurality of recording and reproduction conditions, the method comprising the steps of:

(a) determining whether or not the plurality of recording and reproduction conditions included in the drive information area include a first recording and reproduction condition;

(b) when it is determined that the plurality of recording and reproduction conditions do not include the first recording and reproduction condition, determining whether or not the plurality of recording and reproduction conditions included in the drive information area include a second recording and reproduction condition;

(c) when it is determined that the plurality of recording and reproduction conditions include the second recording and reproduction condition, calculating the first recording and reproduction condition using the second recording and reproduction condition in a predetermined condition formula; and

(d) performing recording and reproduction based on

the calculated first recording and reproduction condition.

34. An information recording and reproduction method according to claim 33, wherein the plurality of recording and reproduction conditions each define an operation condition when an information recording and reproduction apparatus which can have the information recording medium mounted thereon performs data recording and reproduction.

35. An information recording and reproduction method according to claim 33, further comprising the step of:

(e) recording the calculated first recording and reproduction condition in the drive information area.

36. An information recording and reproduction method according to claim 33, wherein:

the step (d) includes the step of performing a trial of data recording and reproduction with the calculated first recording and reproduction condition, and

the method further includes the step of:

(f) determining whether the drive information needs to be updated or the first recording and reproduction condition needs to be acquired by adjustment processing, based on a result of the trial of data recording and reproduction.

37. An information recording and reproduction method according to claim 33, wherein:

the information recording medium further includes a data area for recording data,

the data area is divided into a plurality of segmented areas in a radial direction of the information recording medium, and

each of the plurality of recording and reproduction conditions corresponds to at least one of the plurality of segmented areas.

38. An information recording and reproduction method according to claim 37, wherein the predetermined condition formula is a function of a radius of the information recording medium.

39. An information recording and reproduction method according to claim 37, wherein the predetermined condition formula is a function of a linear velocity of the information recording medium.

40. An information recording and reproduction method according to claim 37, wherein at least one of the plurality of segmented areas includes at least one recording and reproduction instruction area.

41. An information recording and reproduction method according to claim 33, wherein:

a temperature range indicating a range of apparatus temperatures of an information recording and reproduction apparatus includes a plurality of segmented temperature ranges, and

each of the plurality of recording and reproduction conditions corresponds to at least one of the plurality of segmented temperature ranges.

42. An information recording and reproduction method according to claim 41, wherein the predetermined condition formula is a function of the apparatus temperature.

43. An information recording and reproduction method according to claim 33, wherein the plurality of segmented areas are correspond to at least one zone in accordance with one of a ZCLV format and a ZCAV' format.

44. An information recording and reproduction method according to claim 33, wherein:

the drive information includes version information which indicates a condition at which the recording and reproduction conditions are acquired, and

the method further includes the step of:

(g) determining whether the plurality of recording and reproduction conditions are re-usable or need to be updated, based on the version information.

45. An information recording and reproduction method according to claim 44, wherein the version information includes history information concerning firmware for an information recording and reproduction apparatus.

46. An information recording and reproduction apparatus for an information recording medium including a data area divided into a plurality of segmented areas in a radial direction of the information recording medium, the apparatus comprising:

an adjustment information processing section for obtaining a recording and reproduction condition corresponding to a segmented area which is a target of recording and reproduction among the plurality of segmented areas; and

a recording and reproduction control section for performing recording and reproduction based on the obtained recording and reproduction condition.

47. An information recording and reproduction apparatus according to claim 46, wherein the recording and reproduction condition defines an operation condition when an information recording and reproduction apparatus performs data recording and reproduction.

48. An information recording and reproduction apparatus according to claim 46, wherein the adjustment information processing section acquires the recording and reproduction condition by adjustment processing.

49. An information recording and reproduction apparatus according to claim 48, wherein the adjustment information processing section records the recording and reproduction condition on the information recording medium.

50. An information recording and reproduction apparatus according to claim 46, wherein:

the information recording medium further includes a drive information area having drive information including the recording and reproduction condition recorded therein, and

the adjustment information processing section reads the recording and reproduction condition recorded in the drive information area.

51. An information recording and reproduction apparatus according to claim 50, wherein:

the drive information includes version information which indicates a condition at which the recording and reproduction condition is acquired, and

the adjustment information processing section

determines whether the recording and reproduction condition is re-usable or needs to be updated, based on the version information.

52. An information recording and reproduction apparatus according to claim 51, wherein the version information includes history information concerning firmware for the information recording and reproduction apparatus.

53. An information recording and reproduction apparatus according to claim 48, wherein the adjustment information processing section acquires the recording and reproduction condition from an adjustment area included in each of the plurality of segmented areas by the adjustment processing.

54. An information recording and reproduction apparatus according to claim 48, wherein:

the data area includes at least one user area and at least one spare area including at least one substitute area usable in place of a defective area in the user area when the user area includes the defective area, and

the adjustment information processing section acquires the recording and reproduction condition from an unused substitute area among the at least one substitute area in the spare area by the adjustment processing.

55. An information recording and reproduction apparatus according to claim 48, wherein the adjustment information processing section acquires the recording and reproduction condition from an adjustment-only area included in the data area, which is only used for acquiring the recording and reproduction condition.

56. An information recording and reproduction apparatus according to claim 46, wherein the plurality of segmented areas each correspond to at least one zone in accordance with one of a ZCLV format and a ZCAV format.

57. An information recording and reproduction apparatus according to claim 46, wherein at least one of the plurality of segmented areas includes at least one recording and reproduction instruction area.

58. An information recording and reproduction apparatus for an information recording medium, wherein a temperature range indicating a range of apparatus temperatures of the information recording and reproduction apparatus includes a plurality of segmented temperature ranges, the apparatus comprising:

a temperature measuring section for measuring an apparatus temperature of the information recording and reproduction apparatus;

an adjustment information processing section for obtaining a recording and reproduction condition corresponding to a segmented temperature range which includes the measured apparatus temperature; and

a recording and reproduction control section for performing recording and reproduction based on the obtained recording and reproduction condition.

59. An information recording and reproduction apparatus according to claim 58, wherein the recording and reproduction condition defines an operation condition when an information recording and reproduction apparatus performs data recording and reproduction.

60. An information recording and reproduction apparatus according to claim 58, wherein the adjustment information processing section acquires the recording and reproduction condition by adjustment processing.

61. An information recording and reproduction apparatus according to claim 60, wherein the adjustment information processing section records the recording and reproduction condition on the information recording medium.

62. An information recording and reproduction apparatus according to claim 58, wherein:

the information recording medium includes a drive information area having drive information including the recording and reproduction condition recorded therein, and,

the adjustment information processing section reads the recording and reproduction condition recorded in the drive information area.

63. An information recording and reproduction apparatus according to claim 62, wherein:

the drive information includes version information which indicates a condition at which the recording and reproduction condition is acquired, and

the adjustment information processing section determines whether the recording and reproduction condition is re-usable or needs to be updated, based on the version information.

64. An information recording and reproduction apparatus according to claim 63, wherein the version information includes history information concerning firmware for the information recording and reproduction apparatus.

65. An information recording and reproduction apparatus for an information recording medium including a drive information area for recording drive information including a plurality of recording and reproduction conditions, the apparatus comprising:

an adjustment information processing section for determining whether or not the plurality of recording and reproduction conditions included in the drive information area include a first recording and reproduction condition; when it is determined that the plurality of recording and reproduction conditions do not include the first recording and reproduction condition, determining whether or not the plurality of recording and reproduction conditions included in the drive information area include a second recording and reproduction condition; and when it is determined that the plurality of recording and reproduction conditions include the second recording and reproduction condition, calculating the first recording and reproduction condition using the second recording and reproduction condition in a predetermined condition formula; and

a recording and reproduction control section for performing recording and reproduction based on the calculated first recording and reproduction condition.

66. An information recording and reproduction apparatus according to claim 65, wherein the plurality of recording and reproduction conditions each define an operation condition when an information recording and reproduction apparatus performs data recording and reproduction.

67. An information recording and reproduction apparatus according to claim 65, wherein the adjustment information

processing section records the calculated first recording and reproduction condition in the drive information area.

68. An information recording and reproduction apparatus according to claim 67, wherein:

the recording and reproduction control section performs a trial of data recording and reproduction with the calculated first recording and reproduction condition, and

the adjustment information processing section determines whether the drive information needs to be updated or the first recording and reproduction condition needs to be acquired by adjustment processing, based on a result of the trial of data recording and reproduction.

69. An information recording and reproduction apparatus according to claim 65, wherein:

the information recording medium further includes a data area for recording data,

the data area is divided into a plurality of segmented areas in a radial direction of the information recording medium, and

each of the plurality of recording and reproduction conditions corresponds to at least one of the plurality of segmented areas.

70. An information recording and reproduction apparatus according to claim 69, wherein the predetermined condition formula is a function of a radius of the information recording medium.

71. An information recording and reproduction apparatus according to claim 69, wherein the predetermined condition

formula is a function of a linear velocity of the information recording medium.

72. An information recording and reproduction apparatus according to claim 69, wherein at least one of the plurality of segmented areas includes at least one recording and reproduction instruction area.

73. An information recording and reproduction apparatus according to claim 65, wherein:

a temperature range indicating a range of apparatus temperatures of the information recording and reproduction apparatus includes a plurality of segmented temperature ranges, and

each of the plurality of recording and reproduction conditions corresponds to at least one of the plurality of segmented temperature ranges.

74. An information recording and reproduction apparatus according to claim 73, wherein the predetermined condition formula is a function of the apparatus temperature.

75. An information recording and reproduction apparatus according to claim 65, wherein the plurality of segmented areas each correspond to at least one zone in accordance with one of a ZCLV format and a ZCAV format.

76. An information recording and reproduction apparatus according to claim 65, wherein:

the drive information includes version information which indicates a condition at which the recording and reproduction conditions are acquired, and

the adjustment information processing section

determines whether the plurality of recording and reproduction conditions are re-usable or need to be updated, based on the version information.

77. An information recording and reproduction apparatus according to claim 76, wherein the version information includes history information concerning firmware for the information recording and reproduction apparatus.